CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	Juan Manuel		
Family name	Coronado Carneiro		
Gender (*)	Male	Birth date (dd/mm/yyyy)	23/07/1967
ID number	=02223076B		
e-mail	jm.coronado@csic.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-1919-8371	

(*) Mandatory

A.1. Current position

Position	Scientific Researcher (Investigador Científico)		
Initial date	18/09/2023		
Institution	Agencia Estatal consejo Superior de Investigaciones Científicas		
Department/Center	Instituto de Catálisis y Petroleoquímica. ICP-CSIC		
Country	Spain	Teleph. number	915854801
Key words	Catalysis, photocatalysis, thermochemical storage, chemical looping, CO_2 valorization, solar fuels, biofuels		

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2018-2023	Tenured Researcher (Científico Titular) ICP-CSIC
2009-2018	Senior Researcher- IMDEA Energía
2005-2009	Tenured Researcher (Investigador Titular) CIEMAT

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Bachelor in Chemistry	Universidad Complutense de Madrid. Spain	1991
PhD Chemistry	Universidad Complutense de Madrid. Spain	1995

(Include all the necessary rows)

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

Juan M. Coronado realized his doctoral research at the Institute of Catalysis and Petroleum Chemistry (ICP-CSIC) while enjoying a FPI grant, and he holds a PhD in Chemistry from the Complutense University of Madrid (1995). In 1997 he received a grant from the Training and Mobility of Researchers of the "Marie Curie" program of the European Commission for a two-year postdoctoral stay at the University of Dundee (UK). Afterwards, he made shorter stays at the universities of Wisconsin, Pennsylvania State and Northwestern (this last period funded by “Salvador de Madariaga” grant of the Spanish Education Ministry) in USA, and in the Universidad Autónoma Nacional de México (CYTED project). He was a "Ramón y Cajal" researcher at the ICP-CSIC (2003-2005), a tenured researcher of the Solar Platform in Almeria of CIEMAT (2005-2009), and senior researcher at IMDEA Energy (2009-2018). In 2018, he joined the ICP-CSIC as a tenured scientist and in 2023 he was promoted to scientific researcher. His research activity has been focused of the catalysis for energy and environmental applications, as well as in the design of materials for thermochemical energy storage. Among his scientific achievements, it is worth highlighting his **contributions in photocatalysis**, both at the most fundamental level by **studying reaction mechanisms** by *in situ* spectroscopic techniques (mainly FTIR and EPR), the preparation of **novel nanostructured photocatalysts**, and the **development of photoreactors** for the efficient

use of real solar radiation. In this regard, he is co-inventor of a patent of a photocatalytic reactor for gas phase processing using sunlight. Currently he is working on the development of processes for the catalytic production of sustainable fuels from CO_2 using chemical looping, the production of solar fuels by photothermal catalysis, and the design of materials for thermochemical heat storage. In this last field he has been **pioneering in developing redox oxides** with high energy density and stability for solar **thermal storage** applications. Along his research career he has published more than 150 articles, many of them in high impact index scientific journals (e.g. Energy Environ. Sci.; Chem. Rev.; Appl. Catal. B; J Mater. Chem. A), and he has an h-factor of 59 (SCOPUS) accumulating more than 10900 cites. Juan M. Coronado has been guest editor of Catalysis Today, and he is co-author of 10 book chapters. In 2013 he co-edited the book Design of Advanced Photocatalytic Materials for Energy and Environmental Applications" belonging to the Green Energy & Technology series (Springer 2013, ISBN 978-1-4471-5060), which is within 50% of the most downloaded books of this series. He has been invited lecturer at several Universities and Research Centers (UMA, ICMS-CSIC, UA, UCM, IREC, Northwestern, UNED,) and he has been nominated invited professor at Shanxi University (China, 2023). In addition, he has presented more than 120 communications to international scientific conferences, including a plenary lecture (JEP-2009) and two keynotes (ICN4, Fyre) and three invited lectures (NPM-1, SSI21, Sphere). He has been member of the organizing or scientific committees of several national (SECAT) and international conferences (HYPOTHESIS, CCESC). He has also participated in 27 research projects, including four funded by European Institutions. He was the principal investigator of eight of them, including three contracts with energy and chemical companies (REPSOL, UBE Chemicals) and one with the “Ramon Areces” Foundation. Likewise, he has co-supervised seven doctoral theses, eight master's degree thesis and numerous end-of-degree projects. He is also mentor of two “Talent researchers at ICP-CSIC, funded by the corresponding program of the Comunidad the Madrid. In 2019, Juan M. Coronado was considered a “top peer reviewer” by Publon. Besides, he is usual reviewers of projects for the Spanish (AEI) and other international agencies (M-ERANET, COLCIENCIAS (Colombia), Technology Foundation STW (Netherlands). Currently, he is member of the Scientific Advisory Committee of the ICP-CSIC and of the Doctorate Commission of Chemical Engineering of the Autonomous University of Madrid (UAM).

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(see instructions)*

- J. Perry, T. W. Jones, J. M. Coronado, S. W. Donne, A. Bayon,Thermodynamic analysis of a novel two-step high temperature thermo-electrochemical water splitting cycle, Energy,276,(2023) 127412.
- L. Collado, P. Reñones, J. Fermoso, F. Fresno, L. Garrido, V. Pérez-Dieste, C. Escudero, M.D. Hernández-Alonso, J.M. Coronado, D.P. Serrano, V.A. de la Peña O'Shea, The role of the surface acidic/basic centers and redox sites on TiO_2 in the photocatalytic CO_2 reduction. Applied Catalysis B: Environmental 2022, 303 120931.
- A.J. Carrillo, L.E. Chinchilla, A. Iglesias-Juez, S. Gutiérrez-Rubio, D. Sastre, P. Pizarro, A.B. Hungría, J.M. Coronado, Determining the Role of Fe-Doping on Promoting the Thermochemical Energy Storage Performance of $(Mn_{1-x}Fe_x)_3O_4$ Spinels. Small Methods, 2021, 5(10), 2100550
- D. Sastre, C. Álvarez Galván, P. Pizarro, J.M. Coronado, Enhanced performance of CH_4 dry reforming over $La_{0.9}Sr_{0.1}FeO_3$/YSZ under chemical looping conditions Fuel, 2022, 309, 122122
- E. Mastronardo, X. Qian, J, M. Coronado S M. Haile The favourable thermodynamic properties of Fe-doped $CaMnO_3$ for thermochemical heat storage, J. Mater. Chem. A, 2020,8, 8503-8517.
- A. J. Carrillo, J. González-Aguilar, M. Romero, J. M. Coronado. Solar Energy on Demand: A Review on High Temperature Thermochemical Heat Storage Systems and Materials. Chem. Rev. 2019, 119(7), 4777-4816.

- L. Collado, A. Reynal, F. Fresno,M. Barawi, C. Escudero, V. Perez-Dieste, J.M. Coronado, D. P. Serrano, J.R. Durrant,V.A. de la Peña O'Shea, Unravelling the effect of charge dynamics at the plasmonic metal/semiconductor interface for CO_2 photoreduction. Nature Comm. (2018) 9, 4986.
- L. Collado, I. Jansson, A. E Platero-Prats, V. Perez-Dieste, C. Escudero, E. Molins, L. Casas i Doucastela, B. Sánchez, J. M Coronado, D. P Serrano, S. Suarez, V. A de la Peña-O'Shea. Elucidating the Photoredox Nature of Isolated Iron Active Sites on MCM-41. ACS Catalysis, (2017) 7(3) 1646-1654.
- F. Fresno, R. Portela, S. Suárez, J. M. Coronado "Photocatalytic Materials: Recent Achievements and Near Future Trends". J. Mater Chem. A., (2014), 2, 2863-2884
- Y. Yang, C. Ochoa-Hernández,V. A. de la Peña O'Shea, J. M. Coronado, D. P. Serrano, Ni_2P/SBA-15 as a hydrodeoxygenation catalyst with enhanced selectivity for the conversion of methyl oleate into n-octadecane. ACS Catalysis 2012, 2 (4), pp 592–598. DOI: 10.1021/cs200659r

C.2. Congress

- "Electrically Assisted Thermochemical Water Splitting Based on Ceria". J. Perry, T. Jones, S. Donne, A. de la Calle. J. M. Coronado, A. Bayon. Oral presentation. 29th Solar Paces Conference. October 2023. Sidney. (Australia)
- "Exploring the applicability of thermo-kinetic model for thermochemical heat storage using perovskites in fixed-bed reactor" J.M. Coronado, E. Mastronardo, S. Haile, J. González-Aguilar. 27th Solar Paces Conference. Oral (on line) presentation. Alburquerque, USA
- "Thermal Energy Storage". 1st Forum of young Researchers in Energy & Environment. Invited. Messina, Sicily, (on line) Italy, 2020
- "Understanding Redox Reactions of Mn Oxides for Thermochemical Energy Storage". 21st International Conference on Solar State Ionics. Invited Lecture. Padova, Italy. 2017
- "The role of photocatalytic nanostructures on environmental and energy applications" 4th International Conference from Nanoparticles and Nanomaterials to Nanodevices and Nanosystems (IC4N). Invited Lecture. Corfu. Greece.2013
- "Ni_2P/SBA-15: a new type of non-sulfided hydrotreating catalyst for green diesel production" Yang, Y.; Ochoa, C.; de la Peña-O´Shea, V.A.; Coronado, J.M.; Serrano, D.P. Oral communication. EuropaCat X (2011). Glasgow, United Kingdom.
- "Removal of airborne pollutants using continuous Flow Photoreactors". J.M. Coronado, S Suárez, R. Portela, F. Granda and B. Sánchez, P. Ávila, G. Restrepo. Europacat IX, Oral presentation. (2009). Salamanca (Spain)
- Photocatalytic Removal of Gas Phase Pollutants: Opportunities for Solar Applications European Symposium on Photocatalysis. Plenary Lecture. Bordeux, France.2009

C.3. Research projects

- Non-conventional CO_2 valorization to high value-added products. NovaCO2. Retos Investigación.PID2020-118593RB-C21. PIs Prof. Miguel Ángel Bañares y Dra. Ana Iglesias Juez September 2021-August 2024. 242.000 €. Member of the research team.
- Concentrated Solar Energy in the Transport Sector and in the Production of Heat and Electricity. ACES2030. Funded by Madrid Region Government. PI Prof. Manuel Romero February 2019-January 2021. 436,195 €. Member of the research team.
- Development of Low Cost and Re-Usable Solar Photocatalysts for Abatement of Emerging Pollutants in Water. COOPB20370. I-COOP program. CSIC. PI: Juan M. Coronado. April 2019- March 2021. 23,982 €
- Efficient production of solar fuels through the development of new redox-capable perovskites for the thermochemical dissociation of CO_2 and H_2O.: XVII Concurso Nacional

de Ayudas a la Investigación de la Fundación Ramón Areces. 126849 €. Aprill 2015 - March 2018. IMDEA Energía. PI Juan M. Coronado

- Solar Energy Storage PERovskites SESPer. European Commission Marie Skłodowska-Curie Global Fellowship. 234,000 €.: November 2017-October 2020 PI: Emanuela Mastronardo (coordinator Juan M. Coronado)
- "New multifunctional biorefinery concept based on the production of lignocellulosic bioethanol and other bioproducts from pruning and gardening residues" (BIO-LIGWASTE). Programa Estatal de I+D+i Orientada a los Retos de la Sociedad. Retos Colaboración. 102,159€ (IMDEA) November 2016-October 2019: TETma. KL Principal Investigator: Mercedes Ballesteros. Member of the research team
- "Production of clean biofuels for transport from lignocellulosic biomass". Referencia: CTQ2015-68844-REDT. "Redes de Excelencia" del MINECO. Subvención: 20.000,00 €. Duración: December 2015 a Noviembre 2017. Participantes: CIEMAT, UAM, ICP-CSIC, IMDEA Energía, Universidad Rey Juan Carlos. PI: Juan Antonio Melero Hernandez (Coordinator IMDEA Juan M. Coronado)
- "Production of Clean Transport Fuels from Agro-Forestry and Oilseed Residues". RESTOENE-II. Programa de investigación de la Comunidad de Madrid. *Subvención:* 143,451€ *(IMDEA)* Duración: desde Octubre 2014 hasta: Noviembre 2018Participantes: URJC; UAM; ICP_CSIC; CIEMAT e IMDEA Energía. Investigador principal: Dr José Luis García Fierro. (Coordinador IMDEA Juan M. Coronado).
- Design of multifunctional redox systems based on mesoporous transition metals oxides for thermochemical energy storage MINECO (ENE2012-36937. Plan Nacional). 140,000 € . February 2013 January 2016. IP: Dr. Juan Manuel Coronado Carneiro
- Cascade Deoxygenation Process Using Tailored Nanocatalysts For The Production Of Biofuels From Lignocellulosic Biomass. CASCATBEL. Convocatoria: NMP.2013.1.1-1. FP7. European Comission. Participantes: IMDEA Energia (Spain) Ence (Spain) Universita' Degli Studi Di Milano, Univerzita Karlova V Praze, Universiteit Utrecht and up to 17 partners. 591.969,20 € (IMDEA energy). November 2013- November 2017. PI: Dr. David Serrano Granados

C.4. Contracts, technological or transfer merits

- Contract for the PoC of Photothermal Catalysts for CO_2 Hydrogenation. Repsol. IP- Juan M. Coronado. December 2021-May 2022. 49,330 €
- Development of photocatalysts for the production of chemicals by CO_2 valorization."FOTOCONCO2. REPSOL. 2012-2013. IPs Víctor Antonio de la Peña O'Shea and Juan M. Coronado. 168.000€
- Study of the Feasibility of the Use of the UBE-UV Photocatalytic Reactor for the Purification of Water of Different Origin. UBE Corporation Europe S.A. September 2003-December 2005. IP Juan Manuel Coronado Carneiro
- Patent: Tubular photoreactor for supported photocatalysts Inventors- Inventors: Benigno Sánchez, Raquel Portela, Juan M. Coronado Silvia Suárez. P200931134. Priority country: Spain Date of Priority: 9th December 2009. International patent WO 2011/070206 A1. 16 de junio de 2011. Holder of the patent: CIEMAT